

a drywell located inside said containment cavity, said drywell isolated from the reactor pressure vessel by a remotely actuated valve.

Remarks

The Office Action dated June 3, 2003 has been carefully reviewed and the foregoing amendment has been made in consequence thereof.

Subsequent to entry of this amendment, Claims 1-4 and 6-21 are pending in this application. Claims 1-4 and 6-21 stand rejected.

Submitted herewith is a Submission Of Marked Up Claims in accordance with 37 C.F.R. § 1.121(c)(1)(ii).

The rejection of Claims 1-4 and 6-21 under 35 U.S.C. § 112, second paragraph, is respectfully traversed.

Claim 1 has been amended to more clearly show that the claim recites a containment vessel. Also, the antecedent basis for "the reactor pressure vessel" is contained in the preamble of Claim 1. Specifically, the preamble of Claim 1 recites "a metal containment vessel for a boiling water nuclear reactor, the boiling water nuclear reactor comprising a reactor pressure vessel".

In regard to the recitation "said drywell isolated from the reactor pressure vessel by a remotely actuated valve", Applicant disagrees with the suggestion at page 2 of the Office Action that Claim 1 is "vague, indefinite and incomplete because the limitation does not specify what the valve is connected between". Particularly, Applicant submits that one skilled in the art would understand that the remotely actuated valve is connected between the reactor pressure vessel and the drywell (see drywell valve 66 in Figure 2). Applicant also disagrees with the suggestion at

pages 2-3 of the Office Action that "a valve controls fluid flow within a pipe, i.e., it must physically be associated with a pipe or pipes". Particularly, Applicant submits that a valve can control flow through an opening in a reactor pressure vessel wall and therefore not be physically associated with a pipe or pipes (see drywell valve 66 in Figure 2).

Accordingly, Applicant submits that Claims 1-4 and 6-10 are definite and particularly point out and distinctly claim the subject matter which Applicant regards as his invention.

For the reasons set forth above, Applicant respectfully request that the Section 112 rejection of Claims 1-4 and 6-21 be withdrawn.

The rejection of Claims 1-4, 6-9, and 11-20 under 35 U.S.C. § 103(a) as being unpatentable over Nakamaru et al. (US 2002/0085660) in view of Miler et al. (US 4,688,467) is respectfully traversed.

Nakamaru et al. describe a boiling water reactor nuclear power plant that includes a pressure containment vessel 401 that has a dual-cylinder structure of an inner wall 401a and an outer wall 401b. The inner wall 401a forms a dry well 231 about the outer circumference of the pressure vessel 201. The outer wall 401b forms a suppression pool 404 on the outer side of the inner wall 401a. The walls are made by a plurality of steel plates and the spaces between the opposing plates being able to convey water or air. Nakamaru et al. do not describe nor suggest that the containment vessel has a pressure rating of at least about 50 atmospheres.

Miler et al. describes a safety cooling system for a water reactor. Miler et al. teach that the reactor's circuit operates at pressures in the range of 150 bars and that in the event of a rupture the containment vessel will be subject to a sudden increase in pressure (Col. 1, lines 20+). Miler et al. does not describe nor suggest that the containment vessel has a pressure rating

of at least about 50 atmospheres. Rather, Miler et al. describe that the pressure vessel operates at about 150 bars. As explained in paragraph 4 of the present application, known containment vessels typically have a large volume to provide an expansion area for depressurization of steam leaks into the containment vessel. Applicant respectfully submits that the description of Miler et al. that reactor's circuit operates at pressures in the range of 150 bars does not mean that the containment vessel has a pressure rating of 150 bars.

Claim 1 of the present application recites a metal containment vessel for a boiling water nuclear reactor that includes a bottom head, a removable top head, and a substantially cylindrical sidewall extending from the bottom head to the top head. The bottom head, top head and cylindrical sidewall defining a containment cavity sized to receive and enclose the reactor pressure vessel. The containment vessel having a pressure rating of at least about 50 atmospheres and also includes a drywell located inside the containment cavity, with the drywell isolated from the reactor pressure vessel by a remotely actuated valve.

Nakamaru et al. and Miler et al., alone or in combination, do not describe nor suggest a containment vessel as recited in Claim 1. Particularly, Nakamaru et al. and Miler et al., alone or in combination, do not describe nor suggest a containment vessel that has a pressure rating of at least about 50 atmospheres. Specifically, the Office Action, at page 3, admits that Nakamaru et al. do not teach the claimed pressure rating of the containment vessel. Also, as explained above, Miler et al. do not describe nor suggest a pressure rating for the containment vessel.

Accordingly, Applicant submits that Claim 1 is patentable over Nakamaru et al. and Miler et al., alone or in combination.

Claims 2-4 and 6-9 depend from independent Claim 1. When the recitations of dependent Claims 2-4 and 6-9 are considered in combination with the recitations of Claim 1, Applicant respectfully submits that Claims 2-4, and 6-9 likewise are patentable over Nakamaru et al. and Miler et al., alone or in combination.

Claim 11 of the present invention recites a boiling water nuclear reactor that includes a containment vessel having a pressure rating of at least 50 atmospheres.

Nakamaru et al. and Miler et al., alone or in combination, do not describe nor suggest a nuclear reactor as recited in Claim 11. Particularly, Nakamaru et al. and Miler et al., alone or in combination, do not describe nor suggest a containment vessel that has a pressure rating of at least about 50 atmospheres. Specifically, the Office Action, at page 3, admits that Nakamaru et al. do not teach the claimed pressure rating of the containment vessel. Also, as explained above, Miler et al. do not describe nor suggest a pressure rating for the containment vessel. Accordingly, Applicant submits that Claim 11 is patentable over Nakamaru et al. and Miler et al., alone or in combination.

Claims 12-20 depend from independent Claim 11. When the recitations of dependent Claims 12-20 are considered in combination with the recitations of Claim 11, Applicant respectfully submits that Claims 12-20 likewise are patentable over Nakamaru et al. and Miler et al., alone or in combination.

For the reasons set forth above, Applicant respectfully requests that the Section 103(a) rejection of Claims 1-4, 6-9, and 11-20 be withdrawn.

The rejection of Claims 10 and 21 under 35 U.S.C. § 103(a) as being unpatentable over Nakamaru et al. (US 2002/0085660) in view of Miler et al. (US 4,688,467) and further in view of Kobayashi (US 4,576,784) is respectfully traversed.

At least for the reasons explained above, independent Claims 1 and 11 are patentable over Nakamaru et al. and Miler et al., alone or in combination.

Kobayashi describes a nuclear reactor pressure vessel that has a thickness of about 30 cm. Kobayashi does not describe nor suggest a containment vessel that encloses the reactor pressure vessel inside.

Nakamaru et al. and Miler et al., alone or in combination, do not describe nor suggest a containment vessel as recited in Claim 1, nor a nuclear reactor as recited in Claim 11. Particularly, Nakamaru et al. and Miler et al., alone or in combination, do not describe nor suggest a containment vessel that has a pressure rating of at least about 50 atmospheres. Specifically, the Office Action, at page 3, admits that Nakamaru et al. do not teach the claimed pressure rating of the containment vessel. Also, as explained above, Miler et al. do not describe nor suggest a pressure rating for the containment vessel. Further, Kobayashi does not describe nor suggest any containment vessel. Accordingly, Applicant submits that Claims 1 and 11 are patentable over Nakamaru et al., Miler et al., and Kobayashi, alone or in combination.

Claim 10 depends from independent Claim 1 and Claim 21 depends from independent Claim 11. When the recitations of dependent Claims 10 and 21 are considered in combination with the recitations of Claims 1 and 11 respectively, Applicant respectfully submits that Claims 10 and 21 likewise are patentable over Nakamaru et al., Miler et al., and Kobayashi, alone or in combination.

For the reasons set forth above, Applicant respectfully requests that the Section 103(a) rejection of Claims 10 and 21 be withdrawn.

The rejection of Claims 10 and 21 under 35 U.S.C. § 103(a) as being unpatentable over Nakamaru et al. (US 2002/0085660) in view of Miler et al. (US 4,688,467) is respectfully traversed.

At least for the reasons explained above, independent Claims 1 and 11 are patentable over Nakamaru et al. and Miler et al., alone or in combination.

Claim 10 depends from independent Claim 1 and Claim 21 depends from independent Claim 11. When the recitations of dependent Claims 10 and 21 are considered in combination with the recitations of Claims 1 and 11 respectively, Applicant respectfully submits that Claims 10 and 21 likewise are patentable over Nakamaru et al. and Miler et al., alone or in combination.

For the reasons set forth above, Applicant respectfully requests that the Section 103(a) rejection of Claims 10 and 21 be withdrawn.

In view of the foregoing amendments and remarks, all the claims now active in this application are believed to be in condition for allowance. Favorable action is respectfully solicited.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "M. Tersillo", written over a horizontal line.

Michael Tersillo
Registration No. 42,180
ARMSTRONG TEASDALE LLP
One Metropolitan Square, Suite 2600
St. Louis, Missouri 63102-2740
(314) 621-5070



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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Fennern :
Serial No.: 09/683,343 : Art Unit: 3641
Filed: December 17, 2001 : Examiner: R. Palabrica
For: MODULAR REACTOR :
CONTAINMENT SYSTEM :

SUBMISSION OF MARKED UP CLAIMS

Commissioner for Patents
Washington, D.C. 20231

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A marked-up version of amended Claim 1, in accordance with 37 C.F.R.
§ 1.121(c)(1)(ii), follows below.

MARKED UP CLAIMS

1. (twice amended) A metal containment vessel [for a boiling water nuclear reactor, the
boiling water nuclear reactor comprising a reactor pressure vessel,] said containment vessel
comprising:

a bottom head;

a removable top head;

a substantially cylindrical sidewall extending from said bottom head to said top head, said
bottom head, top head and cylindrical sidewall defining a containment cavity sized [to receive
and enclose [a] the reactor pressure vessel, said containment vessel having a pressure rating of at
least about 50 atmospheres; and

a drywell located inside said containment cavity, said drywell isolated from the reactor
pressure vessel by a remotely actuated valve.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Michael Tersillo", written over a horizontal line.

Michael Tersillo
Registration No. 42,180
ARMSTRONG TEASDALE LLP
One Metropolitan Square, Suite 2600
St. Louis, Missouri 63102-2740
(314) 621-5070